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Conference Abstract

Biodiversity Map Project - an integrative approach to biodiversity data and related scientific sources

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Abstract

The Biodiversity Map is a long-term project of the Polish Biodiversity Information Network (KSIB) aimed at integration, presentation and management of comprehensive scientific data about species. The website (www.biomap.pl) was launched in 2012, following a period of extensive digitization work, covering bibliographic information, specimen collections, research notes and other sources of data. Initially, the project was focused on aggregating data about three insect orders: Coleoptera, Hemiptera and Lepidoptera, reported from Poland. Having achieved this goal, the geographic limits were removed and taxonomic scope is being gradually widened, currently including Araneae, Diptera, Hymenoptera, Odonata, Orthoptera and some other minor insect orders, intended to have a checklist of Polish fauna as a starting point. So far, it covers ca. 21,000 species concepts, including their taxonomic hierarchy and synonymy; and more than 1.1 million occurrence records with 19,000 bibliographic sources.

The key functionality of the toolset supports visualization and management of links between different types of data and related underlying sources of the information, like scientific collections, literature, taxonomy, and occurrence records. The database can be accessed with a number of views, called "perspectives" and also by spatial queries through the map server, as an additional interface. This enables users to discover connections between information entities, e.g. publications based on studies from areas adjacent to a chosen locality on a map, or collections containing species covered in a publication. This

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approach is not common in existing systems and we trust it supports a wide range of potential scientific uses.

The project database uses PostgreSQL with PostGIS for spatial queries. Two web applications are used for data presentation: the main text-based PHP browser (baza.biomap.pl) and the dynamic map, relying on JQuery, OpenLayers and MapServer (gis.biomap.pl). The latter provides users with an additional spatial dimension of interaction with the database and direct links to the main application. Recently, a third tool was built, making it possible for users to add and edit occurrence records, taxa, publications and authors. The solution is based on PHP and JavaScript combination.

The data held within the system are planned to be connected to Global Biodiversity Information Facility and thus opened for a broad international community. The main obstacle hindering this step is limited resources to improve and scale up the database and software, as well as efforts to mobilize and organize the data. We need to ascertain the optimal method for dealing with numerous datasets derived from publications, and resolve the dilemma of whether to keep them separated or to merge them. The publications as a source of the scientific information and occurrence records have also been one of the main drivers for building the project software as an independent solution. Existing generic software packages popular in the GBIF community do not provide a direct way to link occurrence records with scientific literature, which is essential for scientific communities, at least in Poland.

Keywords

Biodiversity Map, bibliography, species occurrence, specimen collections, data integration

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